

What is claimed is:

1 1. A remote controller comprising structure information
2 supply means for holding structure information for various
3 types of appliances in advance, and portable remote control
4 means for controlling said appliances,

5 (1) said structure information supply means including:

6 a transmitter's structure information storage unit
7 for storing the structure information, the structure
8 information including control information for each
9 appliance and object information, said control
10 information being used by said remote control means in
11 controlling said appliances, said object information
12 representing manipulation objects forming a manipulation
13 unit of said remote control means; and

14 a structure information transmission unit for
15 retrieving the control information and the object
16 information from said transmitter's structure
17 information storage unit to send the retrieved
18 information to said remote control means,

19 (2) said remote control means including:

20 a structure information receipt unit for receiving
21 the control information and the object information from
22 said structure information transmission unit;

23 a receiver's structure information storage unit for
24 storing the control information and the object
25 information received by said structure information

26 receipt unit,
27 a display unit for displaying a picture having a
28 manipulation area used for manipulating said appliances;
29 and
30 a first display control unit for controlling said
31 display unit to place the manipulation objects on the
32 manipulation area based on the object information stored
33 in said receiver's structure information storage unit.

1 2. The remote controller of Claim 1, wherein said
2 remote control means further includes:
3 a manipulation detection unit for detecting which
4 manipulation object is manipulated on the manipulation area;
5 a first control signal transmission unit for
6 transmitting a control signal assigned for the manipulation
7 object detected by said manipulation detection unit to said
8 appliances based on the control information stored in said
9 receiver's structure information storage unit,
10 whereby said appliances operate in accordance with the
11 control signal from said remote control means.

1 3. The remote controller of Claim 2, wherein said
2 structure information supply means is installed in each
3 appliance controlled by the control signal from said remote
4 control means.

1 4. The remote controller of Claim 3, wherein
2 said structure information supply means further
3 includes:

4 a structure information generation unit for
5 generating state-based control information depending on
6 an action state of each appliance, said state-based
7 control information being transmitted to said remote
8 control means by said structure information transmission
9 unit;

10 an object information generation unit for
11 generating the object information depending on the
12 action state of each appliance, the object information
13 being transmitted to said remote control means by said
14 structure information transmission unit, and
15 wherein said remote control means further includes:

16 a generated information receipt unit for receiving
17 the state-based control information from said structure
18 information transmission unit;

19 a generated information update unit for updating
20 the control information and the object information in
21 said receiver's structure information storage unit in
22 accordance with the state-based control information
23 received by said generated information receipt unit;

24 a second control signal transmission unit for
25 transmitting a control signal assigned to the
26 manipulated object detected by said manipulation

27 detection unit to said appliances based on updated
28 control information stored in said receiver's structure
29 information storage unit;

30 a generated object information receipt unit for
31 receiving updated object information from said structure
32 information transmission unit; and

33 a second display control unit for controlling said
34 display unit to place updated manipulation objects on
35 the manipulation area based on the updated object
36 information received by said generated object
37 information receipt unit.

1 5. The remote controller of Claim 2, wherein said
2 remote control means further includes a structure information
3 request unit for sending a request to said structure
4 information supply means to transmit the structure information
5 and the object information for said appliances, and

6 wherein said structure information supply means further
7 includes a structure information request direction unit for
8 directing said structure information transmission unit to
9 transmit the control information and the object information for
10 said appliances upon receipt of the request from said structure
11 information request unit, and

12 wherein said transmitter's structure information storage
13 unit stores the control information in relation with the object
14 information for each appliance.

1 6. A remote controller comprising structure information
2 supply means for holding structure information for various
3 types of appliances in advance, first remote control means for
4 controlling said appliances, and second portable remote control
5 means for controlling said appliances,

6 (1) said structure information supply means including:

7 a transmitter's structure information storage unit
8 for storing the structure information, the structure
9 information including control information for each
10 appliance and object information, said control
11 information being used by said second remote control
12 means in controlling said appliances, said object
13 information representing manipulation objects forming
14 a manipulation unit of said second remote control means;
15 and

16 a structure information transmission unit for
17 retrieving the control information and the object
18 information from said transmitter's structure
19 information storage unit to send the retrieved
20 information to said second remote control means,

21 (2) said first remote control means including:

22 a manipulation acceptance unit for accepting a
23 manipulation direction; and

24 a signal transmission unit for transmitting a
25 control signal assigned to the manipulation direction

26 accepted by said manipulation acceptance unit,
27 whereby said appliances operate in accordance with the
28 control signal from said first remote control means,
29 (3) said second remote control means including:

30 a structure information receipt unit for receiving
31 the control information and the object information from
32 said structure information transmission unit;

33 a receiver's structure information storage unit for
34 storing the control information and the object
35 information received by said structure information
36 receipt unit,

37 a display unit for displaying a picture having a
38 manipulation area used for manipulating said appliances;

39 a first display control unit for controlling said
40 display unit to place the manipulation objects on the
41 manipulation area based on the object information stored
42 in said receiver's structure information storage unit;

43 a manipulation detection unit for detecting which
44 manipulation object is manipulated on the manipulation
45 area;

46 a first control signal transmission unit for
47 transmitting a control signal assigned for the
48 manipulation object detected by said manipulation
49 detection unit to said appliances based on the control
50 information stored in said receiver's structure
51 information storage unit,

52 whereby said appliances operate in accordance with the
53 control signal from said second remote control means.

1 7. A synthesis apparatus including a plurality of
2 appliances for synthesizing menu information withheld by each
3 appliance, said menu information being hierarchical information
4 enabling a user to control said appliances interactively,

5 (1) one of said plurality of appliances including:

6 first menu storage means for storing first menu
7 information, said first menu information being
8 hierarchical information to be used to control said one
9 appliance;

10 menu information receipt means for receiving the
11 menu information from the other appliances;

12 menu information synthesis means for synthesizing
13 the menu information received by said menu information
14 receipt means and first menu information stored in said
15 first menu information storage unit, resulting
16 synthesized menu information being used as a menu-
17 information selection menu at a highest position in a
18 hierarchy; and

19 menu display means for displaying the menu-
20 information selection menu generated by said menu
21 information synthesis means,

22 (2) each of the other appliances including:

23 menu storage means for storing the menu information

24 unique to each appliance, the menu information being
25 hierarchical information to be used to control each
26 appliance; and
27 menu transmission means for transmitting the unique
28 menu information in said menu storage means to said one
29 appliance.

1 8. The synthesis apparatus of Claim 7, wherein said one
2 appliance further includes synthesis rule storage means for
3 storing rules regulating menu-information synthesis by said
4 menu information synthesis means,
5 whereby said menu information synthesis means
6 synthesizes the menu information from the other appliances and
7 the first menu information in accordance with the synthesis
8 rules.

1 9. The synthesis apparatus of Claim 8, wherein said
2 menu transmission means includes:
3 a menu information retrieval direction unit for
4 detecting a connection with said one appliance and for giving
5 a direction to retrieve the menu information;
6 a menu information retrieval unit for retrieving the
7 menu information from said menu storage means upon receipt of
8 the direction from said menu information retrieval direction
9 unit; and
10 a menu transmission unit for transmitting the menu

11 information retrieved by said menu information retrieval unit
12 to said menu information receipt means.

1 10. The synthesis apparatus of Claim 9, wherein said
2 menu information synthesis means includes:

3 a menu selection acceptance unit for accepting a
4 selection of an appliance subject to control manipulation using
5 the menu-information selection menu displayed by said menu
6 display means;

7 a menu information retrieval unit for retrieving the
8 menu information of the appliance accepted by said menu
9 selection acceptance unit from said menu information synthesis
10 means; and

11 a menu switch control unit for changing a display on
12 said menu display means in accordance with the menu information
13 retrieved by said menu information retrieval unit.

1 11. The synthesis apparatus of Claim 10, wherein said
2 menu information synthesis means further includes:

3 a menu information temporarily storage unit for
4 temporarily storing the menu information received by said menu
5 information receipt means;

6 a first menu information retrieval unit for retrieving
7 the first menu information from said first menu storage means;

8 a synthesis rule retrieval unit for retrieving the
9 synthesis rules from said synthesis rule storage means, said

10 synthesis rules including a synthesis rule for a hierarchial
11 structure, a selection rule for a displayed shape, a synthesis
12 rule for a panel object, and a synthesis rule for control of
13 said appliances; and

14 a hierarchial structure synthesis unit for synthesizing
15 the menu information stored in said menu information
16 temporarily storage unit and the first menu information
17 retrieved by said first menu information retrieval unit in
18 accordance with the hierarchical synthesis rule retrieved by
19 said synthesis rule retrieval unit.

1 12. The synthesis apparatus of Claim 9, wherein said
2 menu information synthesis means further includes:

3 a menu information temporarily storage unit for
4 temporarily storing the menu information received by said menu
5 information receipt means;

6 a first menu information retrieval unit for retrieving
7 the first menu information from said first menu storage means;

8 a synthesis rule retrieval unit for retrieving the
9 synthesis rules from said synthesis rule storage means, said
10 synthesis rules including a synthesis rule for a hierarchial
11 structure, a selection rule for a displayed shape, a synthesis
12 rule for a panel object, and a synthesis rule for control of
13 said appliances; and

14 a hierarchial structure synthesis unit for synthesizing
15 the menu information stored in said menu information

16 temporarily storage unit and the first menu information
17 retrieved by said first menu information retrieval unit in
18 accordance with the hierarchical synthesis rule retrieved by
19 said synthesis rule retrieval unit.

1 13. In a remote control system comprising a plurality
2 of appliances and a remote controller for transmitting control
3 signals to said plurality of appliances,

4 (1) said remote controller including:

5 menu information request transmission means for
6 transmitting a menu information request to each
7 appliance, said menu information being hierarchial
8 information unique to each appliance for enabling a user
9 to control each appliance interactively;

10 menu receipt means for receiving the menu
11 information transmitted from each appliance;

12 menu information synthesis means for synthesizing
13 the menu information received by said menu receipt
14 means;

15 menu display means for visually displaying
16 synthesized menu information generated by said menu
17 information synthesis means;

18 input manipulation means for accepting a user's
19 input manipulation to control said appliances; and

20 control signal transmission means for transmitting
21 the control signals to said appliances based on the

22 input manipulation accepted by said input manipulation
23 means,

24 (2) each appliance including:

25 menu information request receipt means for
26 receiving the menu information request from said menu
27 information request transmission means;

28 menu information transmission means for
29 transmitting the menu information to said menu receipt
30 means when said menu information request receipt means
31 receives the menu information request;

32 control signal receipt means for receiving the
33 control signals from said control signal transmission
34 means; and

35 control means for controlling said appliances as
36 per control signals received by said control signal
37 receipt means.

1 14. The remote control system of Claim 13, wherein said
2 menu information synthesis means includes:

3 a menu information storage unit for storing the menu
4 information of each appliance received by said menu receipt
5 means, the menu information being hierarchical information
6 including a panel object name and shape information;

7 a synthesis rule storage unit for storing synthesis
8 rules regulating menu-information synthesis, said synthesis
9 rules including a synthesis rule for a hierarchical structure,

10 a synthesis rule for a panel object, a selection rule for a
11 displayed shape, and a synthesis rule for control of said
12 appliances;

13 a menu synthesis unit for synthesizing the menu
14 information of said appliances stored in said menu information
15 storage unit into one hierarchical structure in accordance with
16 the hierarchical synthesis rules in said synthesis rule storage
17 unit;

18 a panel object synthesis unit for synthesizing the menu
19 information of said appliances in said menu information storage
20 unit into one panel object in accordance with the synthesis
21 rule for the panel object stored in said synthesis rule storage
22 unit, the synthesis rule for the panel object being to
23 synthesize the menu information identified by an identical
24 panel object name;

25 a shape synthesis unit for making the shape information
26 uniform for each appliance for the menu information in said
27 menu information storage unit in accordance with the selection
28 rule for the displayed shape in said synthesis rule storage
29 unit, said selection rule being to select the shape information
30 of a specified appliance and apply the same to the shape
31 information for each appliance for the menu information in said
32 menu information storage unit; and

33 an action append unit for inserting data as to an
34 control action in accordance with the synthesis rule for the
35 control of said appliances, the synthesis rule for the control

36 being to insert the data as to the control action described by
37 the synthesis rule for the control at a position specified by
38 the synthesis rule for the control.

1 15. The remote control system of Claim 14, wherein said
2 menu display means includes:

3 a bit map data conversion unit for converting the menu
4 information synthesized by said menu synthesis unit, panel
5 synthesis unit, shape synthesis unit, and action append unit
6 into bit map data for a visual display;

7 a display unit for displaying the menu information
8 converted into the bit map data by said bit map data conversion
9 unit;

10 a first manipulation acceptance unit for accepting a
11 user's selection of menu displayed by said display unit; and

12 a selected menu notice unit for notifying a menu
13 selected and accepted by said first manipulation acceptance
14 unit to said menu information synthesis means.

1 16. The remote control system of Claim 15, wherein
2 said menu information synthesis means further includes a menu
3 information retrieval unit for retrieving the menu information
4 from said menu storage unit for the appliance corresponding to
5 the menu notified by said selected menu notice unit, retrieved
6 menu information including information as to manipulation
7 objects displayed by said display unit, and

wherein said menu display means further includes:

a menu information conversion unit for converting the menu information retrieved by said menu information retrieval unit into the bit map data, the menu information retrieved by said menu information retrieval unit including information as to a display of manipulation objects displayed by said display unit;

a change-menu display control unit for controlling said display unit to display the menu information converted into the bit map data by said menu information conversion unit;

a second manipulation acceptance unit for accepting a user's control manipulation related to a control over the appliance using the manipulation objects displayed by said display unit; and

a manipulation notice unit for notifying the control manipulation accepted by said second manipulation acceptance unit to said control signal transmission unit.

17. A program receiver for displaying a graphical interactive picture by receiving a program transmitted from a program transmitter, said program receiver comprising:

storage means for storing a plurality of basic picture elements in advance, said plurality of basic picture elements being figures composing the graphical interactive picture

7 manipulated by a user;

8 signal receipt means for receiving a signal transmitted
9 from said program transmitter, said signal being a multiplex
10 signal including a program and data specifying a structure of
11 the graphical interactive picture;

12 signal separation means for separating the signal
13 received by said signal receipt means into a program signal and
14 a graphical-interactive-picture-structure specification data
15 signal;

16 first graphical interactive picture generation means for
17 generating the graphical interactive picture by combining the
18 basic picture elements stored in said storage means based on
19 the graphical-interactive-picture-structure specification data
20 signal from said signal separation means; and

21 display means for displaying the graphical interactive
22 picture generated by said first graphical interactive picture
23 generation means.

1 18. The program receiver of Claim 17 further
2 comprising:

3 interactive manipulation means for inputting
4 manipulation to the graphical interactive picture displayed by
5 said display means;

6 basic action storage means for storing a content of an
7 action for updating the graphical-interactive-picture-structure
8 specification data; and

9 second graphical interactive picture generation means
10 for retrieving the content of the action from said basic action
11 storage means based on action information directing an update
12 of the graphical interactive picture upon receipt of the input
13 manipulation from said interactive manipulation means to update
14 the graphical-interactive-picture-structure specification data
15 to generate an updated graphical interactive picture.

1 19. The program receiver of Claim 18, wherein said
2 basic picture elements in said storage means are composed of
3 file names identifying each basic picture element and the bit
4 map data for each basic picture element, and

5 wherein said first graphical interactive picture
6 generation means includes:

7 a receipt.decode unit for receiving the graphical-
8 interactive-picture-structure specification data signal from
9 said signal separation means to decode the same;

10 a storage unit for storing decoded graphical-
11 interactive-picture-structure specification data from said
12 receipt.decode unit, the graphical-interactive-picture-
13 structure specification data being composed of a class
14 definition including a plurality pieces of class attribute
15 information, a panel object definition including a plurality
16 pieces of panel object information, an action definition
17 including a plurality pieces of action information, and a shape
18 definition including a plurality pieces of shape information;

19 a first process unit for retrieving the graphical-
20 interactive-picture-structure specification data from said
21 storage unit, extracting the basic picture elements
22 corresponding to the file names by referring to the shape
23 information from said storage unit in accordance with the
24 retrieved graphical-interactive-picture-structure specification
25 data, and for placing the extracted basic picture elements by
26 referring to the panel object information; and

27 a first display control unit for controlling the display
28 means to display the basic picture elements placed by said
29 first process unit as the graphical interactive picture.

1 20. The program receiver of Claim 19, wherein
2 said interactive manipulation means includes:

3 an input manipulation acceptance unit for accepting
4 a user's input manipulation to the graphical interactive
5 picture; and

6 an interactive signal transmission unit for
7 transmitting the input manipulation accepted by said
8 manipulation acceptance unit to said second graphical
9 interactive picture generation unit as an interactive
10 signal, and

11 wherein said second graphical interactive picture
12 generation means includes:

13 an interactive signal receipt unit for receiving
14 the interactive signal from said interactive signal

15 transmission unit;

16 an interactive signal interpretation unit for

17 interpreting the interactive signal received by said

18 interactive signal receipt unit;

19 a graphical-interactive-picture-structure

20 specification data update unit for retrieving a content

21 of an action from said basic action storage means in

22 accordance with the interactive signal interpreted by

23 said interactive signal interpretation unit to update

24 the graphical-interactive-picture-structure

25 specification data in said storage unit;

26 a second process unit for retrieving updated

27 graphical-interactive-picture-structure specification

28 data from said storage unit, and for extracting the

29 basic picture elements corresponding to the file names

30 from said storage means to place the extracted display

31 elements; and

32 a second display control unit for controlling said

33 display means to display the basic picture elements

34 placed by said second process unit as an updated

35 graphical interactive picture.

1 21. The program receiver of claim 20 further comprising

2 information transmission means for transmitting the data of

3 the graphical interactive picture updated by said interactive

4 manipulation means to said program transmitter.

1 22. The program receiver of Claim 19 further comprising
2 information transmission means for transmitting the data of
3 the graphical interactive picture updated by said interactive
4 manipulation means to said program transmitter.

1 23. The program receiver of Claim 18, wherein
2 said basic picture elements in said storage means are
3 composed of file names identifying each basic picture element
4 and the bit map data for each basic picture element, and
5 wherein said first graphical interactive picture
6 generation means includes:

7 a receipt-decode unit for receiving the graphical-
8 interactive-picture-structure specification data signal
9 from said signal separation means to decode the same;

10 a data division unit for dividing the decoded
11 graphical-interactive-picture-structure specification
12 data from said receipt-decode unit into a first
13 graphical-interactive-picture-structure specification
14 data and a second graphical-interactive-picture-
15 structure specification data, said first graphical-
16 interactive-picture-structure specification data
17 excluding a synthesis instruction, said second
18 graphical- interactive-picture-structure specification
19 data including the synthesis instruction, the graphical-
20 interactive-picture-structure specification data being

21 composed of a panel object definition including a
22 plurality pieces of panel object information, an action
23 definition including a plurality pieces of action
24 information, a shape definition including a plurality
25 pieces of shape information, and synthesis direction
26 data including a synthesis command in case of the second
27 graphical-interactive-picture-structure specification
28 data;

29 a first graphical-interactive-picture-structure
30 specification data storage unit for storing the first
31 graphical-interactive-picture-structure specification
32 data;

33 a second graphical-interactive-picture-structure
34 specification data storage unit for storing the second
35 graphical-interactive-picture-structure specification
36 data;

37 a graphical interactive picture synthesis unit for
38 synthesizing the first graphical-interactive-picture-
39 structure specification data in said first graphical-
40 interactive-picture-structure specification data storage
41 unit and the second graphical-interactive-picture-
42 structure specification data in said second graphical-
43 interactive-picture-structure specification data storage
44 unit in accordance with the synthesis command of the
45 synthesis direction data stored in said second
46 graphical-interactive-picture-structure specification

47 data storage unit;

48 a graphical-interactive-picture-structure
49 specification data update unit for updating the first
50 graphical-interactive-picture-structure specification
51 data in said first graphical-interactive-picture-
52 structure specification data storage unit with the
53 synthesized graphical-interactive-picture-structure
54 specification data from said graphical interactive
55 picture synthesis unit;

56 a first process unit for retrieving updated
57 graphical-interactive-picture-structure specification
58 data from said first graphical-interactive-picture-
59 structure specification data storage unit, and for
60 extracting the basic picture elements corresponding to
61 the file names by referring to the shape information in
62 said storage means to place the extracted basic picture
63 elements by referring to the panel object information;
64 and

65 a first display control unit for controlling said
66 display means to display the basic picture elements
67 placed by said first process unit as an updated
68 graphical interactive picture.

1 24. The program receiver of Claim 23 further comprising
2 information record means for outputting data related to the
3 graphical interactive picture as per manipulation form said

4 interactive manipulation means to make a record thereof.

1 25. The program receiver of Claim 18 further comprising
2 information transmission means for transmitting the data of the
3 graphical interactive picture updated by said interactive
4 manipulation means to said program transmitter.

1 26. The program receiver of Claim 18 further comprising
2 information record means for outputting data related to the
3 graphical interactive picture as per manipulation form said
4 interactive manipulation means to make a record thereof.

1 27. A system including peripheral appliances holding
2 graphical interactive picture structure data and a display unit
3 for displaying a graphical interactive picture for said
4 peripheral appliances by receiving a unique manipulation
5 direction signal from each peripheral appliance, said display
6 unit including:

7 graphical interactive picture structure data receipt
8 means for receiving the graphical interactive picture structure
9 data from said peripheral appliances to generate the graphical
10 interactive picture;

11 display's graphical interactive picture structure data
12 storage means for storing the graphical interactive picture
13 structure data received by said graphical interactive picture
14 structure data receipt means;

15 graphical display element storage means for storing a
16 plurality of graphical display elements to generate the
17 graphical interactive picture;

18 manipulation direction signal receipt means for
19 receiving the manipulation direction signal from said
20 peripheral appliances;

21 graphical interactive picture generation means for
22 receiving the manipulation direction signal received by said
23 manipulation direction signal receipt means, and for retrieving
24 the graphical interactive picture structure data from said
25 display's graphical interactive picture structure data storage
26 means to generate the graphical interactive picture by
27 combining the graphical display elements stored in said
28 graphical display element storage means; and

29 display means for displaying the graphical interactive
30 picture generated by said graphical interactive picture
31 generation means.

1 28. The system of Claim 27, wherein said graphical
2 interactive picture generation means includes:

3 a temporarily storage unit for temporarily storing the
4 manipulation direction signal received by said manipulation
5 direction signal receipt means;

6 a retrieval unit for retrieving the manipulation
7 direction signal from said temporarily storage unit;

8 a graphical interactive picture structure data extract

9 unit for extracting the graphical interactive structure data
10 from said display's graphical interactive picture structure
11 data storage means in accordance with the manipulation
12 direction signal retrieved by said retrieval unit to generate
13 the graphical interactive picture, the graphical interactive
14 picture structure data including object information defining
15 objects that form the graphical interactive picture, shape
16 information defining shapes of the objects, position
17 information defining positions of the objects, action
18 information defining the objects' actions that change the
19 graphical interactive picture based on the manipulation
20 direction signal;

21 a graphical display element extract unit for extracting
22 bit map data from said graphical display element storage means
23 based on the shape information extracted by said graphical
24 interactive picture structure data extract unit, said bit map
25 data being stored in said graphical display element storage
26 means in relation with the shape information;

27 a synthesis generation unit for generating a graphical
28 display by synthesizing the bit map data extracted by said
29 graphical display element extract unit and an attribute value
30 of a character string attribute of each object, said attribute
31 value of the character string attribute displayed on the bit
32 map data being included in the object information;

33 a placement unit for placing the graphical display
34 synthesized by said synthesis generation unit based on the

35 position information in the graphical interactive picture
36 structure data.

1 29. The system in Claim 28, wherein said graphical
2 interactive picture generation means further includes a
3 graphical interactive picture structure data update unit for
4 updating a content of the graphical interactive picture
5 structure data in said display's graphical interactive picture
6 structure data storage unit based on the action information
7 extracted by said graphical interactive picture structure data
8 extract unit when the manipulation direction signal retrieved
9 by said retrieval unit is an update direction.

1 30. The system of Claim 29, wherein said display unit
2 further includes:

3 TV receiver means for converting a received program into
4 an image;

5 TV manipulation means for accepting a manual
6 manipulation to said TV receiver means;

7 TV's graphical interactive picture structure data
8 storage means for storing the graphical interactive picture
9 structure data related to said TV receiver means in advance;
10 and

11 TV's interactive picture generation means for retrieving
12 the graphical interactive picture structure data from said TV's
13 graphical interactive picture structure data storage means when

14 said TV manipulation means receives the manual manipulation to
15 generate the graphical interactive picture by combining the
16 graphical display elements in said graphical display element
17 storage means to update the graphical interactive picture each
18 time a manual manipulation is received by said TV manipulation
19 means.

1 31. The system of Claim 30, wherein each peripheral
2 appliance includes:

3 manipulation means for accepting a user's action
4 direction addressed to a self's peripheral appliance;

5 user's graphical interactive picture structure data
6 storage means for storing the graphical interactive picture
7 structure data to display the graphical interactive picture as
8 per action direction accepted by said manipulation means;

9 control means for controlling said self's peripheral
10 appliance to set a function by giving a direction to transmit
11 the graphical interactive picture structure data and generating
12 a manipulation direction signal to generate the graphical
13 interactive picture and a manipulation direction signal to
14 updated graphical interactive picture upon acceptance of the
15 action direction from said manipulation means;

16 graphical interactive picture structure data
17 transmission means for retrieving the graphical interactive
18 picture structure data from said user's graphical interactive
19 picture structure data storage means upon receipt of the

20 transmission direction from said control means, and for
21 transmitting the retrieved graphical interactive picture
22 structure data to said display unit; and

23 manipulation direction signal transmission means for
24 transmitting the manipulation direction signal generated by
25 said control means to said display unit.

;

1 32. The system of Claim 31, wherein said control means
2 includes:

3 a first signal generation unit for generating the
4 manipulation direction signal as per action direction from
5 said manipulation means; and

6 a second signal generation unit for generating a
7 predetermined subsidiary data signal depending on current
8 action state of said self's peripheral appliance, said
9 subsidiary data being a supplement of the graphical interactive
10 picture structure data and constituting an integral part
11 thereof, said subsidiary data signal being generated by said
12 first signal generation unit together with the manipulation
13 direction signal.

1 33. The system of Claim 32, wherein said manipulation
2 means is portable.

1 34. A system comprising a remote controller for
2 controlling peripheral appliances and a display unit for

3 displaying a graphical interactive picture as per manipulation
4 direction signal from said remote controller,

5 (1) said remote controller including:

6 manipulation means for accepting an action
7 direction addressed to said remote controller;

8 control means for controlling said remote
9 controller to set a function upon acceptance of the
10 action direction from said manipulation means, and for
11 generating a manipulation direction signal to generate
12 the graphical interactive picture and a manipulation
13 direction signal to update the graphical interactive
14 picture;

15 manipulation direction signal transmission means
16 for transmitting the manipulation direction signal
17 generated by said control means to said display unit,

18 (2) said display unit including:

19 appliance's graphical interactive picture structure
20 data storage means for storing the graphical interactive
21 picture structure data in advance to generate the
22 graphical interactive picture for said peripheral
23 appliances;

24 graphical display element storage means for storing
25 a plurality of graphical display elements to generate
26 the graphical interactive picture;

27 manipulation direction signal receipt means for
28 receiving the manipulation direction signal from said

29 remote controller;

30 graphical interactive picture generation means for
31 retrieving the graphical interactive picture structure
32 data from said appliance's graphical interactive picture
33 structure data storage means upon receipt of the
34 manipulation direction signal received by said
35 manipulation direction signal receipt means to generate
36 the graphical interactive picture by combining the
37 graphical display elements stored in said graphical
38 display element storage means based on the retrieved
39 graphical interactive picture structure data;

40 display means for displaying the graphical
41 interactive picture generated by said graphical
42 interactive picture generation means;

43 TV receiver means for converting a received TV
44 program into an image;

45 TV manipulation means for accepting a manual
46 manipulation to said TV receiver means;

47 TV's graphical interactive picture structure data
48 storage means for storing the graphical interactive
49 picture structure data as to said TV receiver means in
50 advance;

51 TV's graphical interactive picture generation means
52 for retrieving the graphical interactive picture
53 structure data from said TV's graphical interactive
54 picture structure data storage means when said TV

manipulation means receives the manual manipulation to generate the graphical interactive picture by combining the graphical display elements stored in said graphical display element storage means based on the retrieved graphical interactive picture structure data to update the graphical interactive picture each time said TV manipulation means receives a manual manipulation.

35. A system comprising a relay, a remote controller, and a display unit, said relay being a peripheral appliance for transferring an action direction signal from said remote controller to said display unit, said relay's function being set by said remote controller, said display unit displaying a graphical interactive picture upon receipt of the signal from said relay,

(1) said remote controller including:

first manipulation means for accepting an action of said remote controller;

first graphical interactive picture structure data storage means for storing graphical interactive picture structure data in advance to generate the graphical interactive picture as per action direction;

first control means for controlling said remote controller to set a function upon receipt of the action direction from said first manipulation means by giving a direction to transmit the graphical interactive

19 picture structure data and generating a manipulation
20 direction signal to generate the graphical interactive
21 picture and a manipulation direction signal to update
22 the graphical interactive picture;

23 first graphical interactive picture structure data
24 transmission means for retrieving the graphical
25 interactive picture structure data from said first
26 graphical interactive picture structure data storage
27 means upon receipt of the transmission direction from
28 said first control means to transmit the same to said
29 relay; and

30 first manipulation direction signal transmission
31 means for transmitting the manipulation direction signal
32 generated by said first control means to said relay,
33 (2) said relay including:

34 second manipulation means for accepting an action
35 direction addressed to said relay;

36 user's graphical interactive picture structure data
37 storage means for storing the graphical interactive
38 picture structure data in advance to generate the
39 graphical interactive picture as per action direction
40 addressed to said relay;

41 second control means for controlling said relay
42 to set a function upon receipt of the action direction
43 from said second manipulation means by giving a
44 direction to transmit the graphical interactive picture

45 structure data and generating a manipulation direction
46 signal to generate the graphical interactive picture and
47 a manipulation direction signal to update the graphical
48 interactive picture;

49 graphical interactive picture structure data
50 transmission means for retrieving the graphical
51 interactive picture structure data from said user's
52 graphical interactive picture structure data storage
53 means upon receipt of the transmission direction from
54 said second control means to transmit the same to said
55 display unit;

56 second manipulation direction signal transmission
57 means for transmitting the manipulation direction signal
58 generated by said second control means to said display
59 unit;

60 data relay means for receiving the graphical
61 interactive picture structure data from said first
62 graphical interactive picture structure data
63 transmission means to transmit the same to said display
64 unit; and

65 signal relay means for receiving the manipulation
66 direction signal from said first manipulation direction
67 signal transmission means to transmit the same to said
68 display unit,

69 (3) said display unit including:

70 graphical display element storage means for storing

71 a plurality of graphical display elements to generate
72 the graphical interactive picture;

73 graphical interactive picture structure data
74 receipt means for receiving the graphical interactive
75 picture structure data to generate the graphical
76 interactive picture from said relay;

77 display's graphical interactive picture structure
78 data storage means for storing the graphical interactive
79 picture structure data received by said graphical
80 interactive picture structure data receipt means;

81 manipulation direction signal receipt means for
82 receiving the manipulation direction signal from said
83 relay;

84 graphical interactive picture generation means for
85 retrieving the graphical interactive picture structure
86 data from said display's graphical interactive picture
87 structure data storage means upon receipt of the
88 manipulation direction signal received by said
89 manipulation direction signal receipt means to generate
90 the graphical interactive picture by combining the
91 graphical display elements stored in said graphical
92 display element storage means based on the retrieved
93 graphical interactive picture structure data, and for
94 updating the graphical interactive picture each time
95 said manipulation direction signal receipt means
96 receives a manipulation direction signal; and

97 display means for displaying the graphical
98 interactive picture generated by said graphical
99 interactive picture generation means.

1 36. A system comprising a relay, a remote controller,
2 and a display unit, said relay being a peripheral appliance for
3 transferring an action direction signal from said remote
4 controller to said display unit, said relay's function being
5 set by said remote controller, said display unit displaying a
6 graphical interactive picture upon receipt of the signal from
7 said relay,

8 (1) said remote controller including:

9 first manipulation means for accepting an action
10 direction addressed to said remote controller;

11 first control means for controlling said remote
12 controller to set a function by giving a direction to
13 transmit graphical interactive picture structure data
14 to said relay and generating a manipulation direction
15 signal to generate a graphical interactive picture and
16 to update the graphical interactive picture; and

17 first manipulation direction signal transmission
18 means for transmitting the manipulation direction signal
19 generated by said first control means to said relay,

20 (2) said relay including:

21 second manipulation means for accepting an action
22 direction addressed to said relay;

23 user's graphical interactive picture structure data
24 storage means for storing the graphical interactive
25 picture structure data in advance to display the
26 graphical interactive picture as per action direction
27 addressed to said relay;

28 first graphical interactive picture structure data
29 storage means for storing in advance the graphical
30 interactive picture structure data to display the
31 graphical interactive picture as per graphical-
32 interactive-picture-structure data transmission
33 direction from said remote controller;

34 second control means for controlling said relay
35 to set a function upon receipt of the action direction
36 from said second manipulation means by giving a
37 direction to transmit the graphical interactive picture
38 structure data and generating a manipulation direction
39 signal to generate the graphical interactive picture and
40 to update the graphical interactive picture;

41 graphical interactive picture structure data
42 transmission means for retrieving the graphical
43 interactive picture structure data from said user's
44 graphical interactive picture structure data storage
45 means and said first graphical interactive picture
46 structure data storage means upon receipt of the
47 transmission direction from said second control means
48 and said remote controller respectively to transmit the

49 same to said display unit;

50 second manipulation direction signal transmission
51 means for transmitting the manipulation direction signal
52 generated by said second control means to said display
53 unit; and

54 signal relay means for receiving the manipulation
55 direction signal received by said remote control means
56 to transmit the same to said display unit,

57 (3) said display unit including:

58 graphical display element storage means for storing
59 a plurality of graphical display elements to generate
60 the graphical interactive picture;

61 graphical interactive picture structure data
62 receipt means for receiving the graphical interactive
63 picture structure data to generate the graphical
64 interactive picture from said relay;

65 display's graphical interactive picture structure
66 data storage means for storing the graphical interactive
67 picture structure data received by said graphical
68 interactive picture structure data receipt means;

69 manipulation direction signal receipt means for
70 receiving the manipulation direction signal from said
71 relay;

72 graphical interactive picture generation means for
73 retrieving the graphical interactive picture structure
74 data from said display's graphical interactive picture

75 structure data storage means upon receipt of the
76 manipulation direction signal received by said
77 manipulation direction signal receipt means to generate
78 the graphical interactive picture by combining the
79 graphical display elements stored in said graphical
80 display elements based on the manipulation direction,
81 and for updating the graphical interactive picture each
82 time said manipulation direction signal receipt means
83 receives a manipulation direction signal; and
84 display means for displaying the graphical
85 interactive picture generated by said graphical
86 interactive picture generation means.